

REMARKS

Applicants' undersigned attorney thanks the Examiner for her comments. Applicants respectfully request reconsideration of this patent application, particularly in view of the above Amendment and the following remarks. Currently, Claims 1-33 are pending.

The present invention is directed to intermittent ultrasonic bonds that create a strong, leak-proof seal. The leak-proof, or moisture-proof, seal is created when at least two layers of material are ultrasonically bonded with numerous point bonds that are spaced sufficiently close together to create a seal between the bonds. When ultrasonic bonds are used to form a bond, part of the substrate material being bonded is displaced outside of the actual bond point. In this invention, the displaced materials either contact each other, thereby blocking any passage of fluid between the bond points, or are close enough together to create a sufficiently tortuous path to block any passage of fluid between the bond points. Furthermore, the strength of the bond is optimized through the use of point bonds, versus a solid bond.

Amendment to the Claims

Applicants have amended Claims 1, 14, and 27 to each include the limitations of the bond points being aligned in at least three parallel rows, each of the bond points in each of the rows equally spaced apart from one another with the bond points in adjacent rows offset from one another. Support for this amendment is provided on page 9, lines 4-10, of the specification and in Fig. 1.

Claim Rejections - 35 USC §102

The rejection of Claims 1-33 under 35 USC §102(b) as being anticipated by Bridges et al. (U.S. Patent No. 5,624,420, hereinafter "Bridges") is respectfully traversed.

Bridges discloses a disposable undergarment having non-perforated tear lines for removing the garment from a wearer. The non-perforated tear lines include individual bond sites that are sized, shaped, spaced, and arranged geometrically to provide a desired line of weakness. The bond sites are thinned and resolidified membranes, which create a weakened zone.

For a reference to anticipate a claim, the reference must teach each and every element or limitation of the claim. Bridges does not teach each and every element or limitation of amended Claims 1, 14, and 27. Applicants' invention as claimed in amended independent Claims 1, 14, and 27 requires at least three parallel rows of bond points, each of the bond points in each of the rows equally spaced apart from one another with the bond points in adjacent rows offset from one another.

As can be seen in Figs. 1A-1H of Bridges, at most there are three parallel rows of bond points (1E and 1F), but the bond points are not equally spaced apart from one another because the outer two rows have twice the distance between bond points as the inner row. The "zig-zag" pattern taught by Bridges may be conducive to creating the tear line of Bridges, but would not likely prevent leakage through a seam bonded this way.

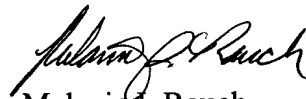
Furthermore, the teachings of Bridges are quite the opposite of the present invention. Bridges is teaching the use of ultrasonic bonding to create lines of weak membranes such that a garment can be torn apart along the weak membranes. In contrast, the present invention is teaching the use of an ultrasonic bond pattern to create a considerably strong bond between two or more substrates with a reduced likelihood of tearing or unbonding compared to a continuous ultrasonic bond, and with the added feature of preventing leakage through the bond. Thus, a person skilled in the art would not have any reason to apply the teachings of Bridges for the purpose of creating a leak-proof, durable seam as taught in the present invention. Additionally, the present invention is non-obvious because a person skilled in the art would not logically use a discontinuous bond pattern, as taught in the present invention, to create a leak-proof seam.

For at least the reasons presented above, Applicants respectfully submit that amended Claims 1, 14, and 27 are not anticipated by Bridges. Because Claims 2-10 and 12-13 depend from Claim 1, Claims 15-16 and 18-26 depend from Claim 14, and Claims 28-32 depend from Claim 27, these claims are also not anticipated by Bridges. Thus, Applicants respectfully request withdrawal of this rejection.

Conclusion

Applicants believe that this case is now in condition for allowance. If the Examiner feels that any issues remain, then Applicants' undersigned attorney would like to discuss the case with the Examiner. The undersigned can be reached at (847) 490-1400.

Respectfully submitted,



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**VERSION WITH MARKINGS TO SHOW CHANGES MADE
IN THE CLAIMS:**

1. (Amended) A leak-proof seal, comprising:
at least two layers of liquid-impermeable material at least partially positioned in overlapping relationship;
a plurality of ultrasonic bond points bonding together the at least two layers of liquid-impermeable material;
wherein the bond points are aligned in at least [two] three parallel rows, each of the bond points in each of the rows equally spaced apart, and the bond points in adjacent rows are offset from one another.

14. (Amended) A combination of a first liquid-impermeable, nonwoven laminate bonded to a second liquid-impermeable material, comprising:
a plurality of ultrasonic bond points joining the first liquid-impermeable, nonwoven laminate to the second liquid-impermeable material;
wherein the bond points are aligned in a pattern including at least three parallel rows, each of the bond points in each of the rows equally spaced apart with the bond points in adjacent rows offset from one another, such that each bond point is within about 0.001 inch to about 0.20 inch of at least one other bond point.

27. (Amended) A bonding process for bonding together two layers of liquid-impermeable material, comprising the steps of:
ultrasonically bonding the two layers together with discrete bond points aligned in at least three parallel rows, each of the bond points in each of the rows equally spaced apart, with the bond points in adjacent rows offset from one another; and
displacing portions of each layer of material, wherein each of the displaced portions is in contact with at least one other displaced portion.